

## Report of the FTCP Conference Call of July 2004 (Held on August 4, 2004)

### I. Agenda for the Call

1. Roll Call of Sites/Agents
2. Opening Remarks by Mr. Schepens, FTCP Chair and/or Mr. Poe, FTCP Vice Chair
3. Update on FTCP Annual Plan Actions/DNFSB Commitments
  - a. Status of DNFSB Recommendation 2004-1 and FTCP Quarterly Report for 3rd Quarter FY 2004 – Led by Mr. Evans
  - b. Status of NNSA Facility Representative Staffing Analysis Review – Led by Mr. Hoag
  - c. Status of Activities to Develop a Standardized Workforce Analysis and Staffing Process – Led by Mr. Swailes and Mr. Arango
  - d. Status of Initial SSO Program Assessments – Led by Mr. Swailes
  - e. Status of Activities Underway to Prepare an Action Plan that Identifies Specific Action to Pursue that will Enhance the Capability and Qualifications of DOE Authorization Basis Personnel (Action 4.1) – Led by Mr. Morrow and Ms. Olinger
4. Call for any other New Business, Concerns, or Issues
  - a. Project Management Qualification Card – Led by Mr. Schepens
5. Summary of Conference Call and Review of Action Items
  - a. Next Conference Call – August 25, 2004, 10:00 to 11:00 EST, call-in number (301) 903-6064 [reservation number 100553]

### II. Results and Report of the Call

1. Roll Call:
  - a. The following sites were represented – EM Carlsbad, Ohio, ORP, and Richland;; NE Idaho; NNSA Los Alamos, NNSA Service Center, Pantex, Sandia, Savannah River, and Y-12; and HQ DR, EM, EH, NNSA; ME, and DNFSB.
  - b. The following sites were not represented – EM Rocky Flats and Savannah River Operations Office; SC Oak Ridge; NNSA Livermore and Nevada;
2. Opening Remarks: Mr. West announced that Bob Poe, FTCP Vice Chairman and Oakridge Operations Office agent had retired affective August 3, 2004.
3. Update on FTCP Actions/DNFSB Commitments:
  - a. Status of DNFSB Recommendation 2004-1 and FTCP Quarterly Report for 3rd Quarter FY 2004 –  
  
Mr. Evans stated that the data call for Quarterly Performance Indicator Report input was sent out last week and thanked the sites for providing input. Sites **not** providing input as of the today's call were: **NNSA Savannah River** and **Service Center; EM Carlsbad** (Mr. Wu stated it was sent on Friday and Mr. Evans

committed to check again) and **Rock Flats; and EH** (Mr. Darrell Huff stated that there was no change in EH numbers).

Mr. Evans stated that the Secretary of Energy accepted DNFSB Recommendation 2004-1 (Attachment 1) on July 21, 2004 (Attachment 2), and that the Implementation Plan will accomplish two key activities of concern to the Panel.

- *Establish a technically-competent, central authority or authorities with core safety responsibilities.*
- *Validate that safety responsibilities, capabilities, and authorities are implemented and consistent with requirements.*

Sub-groups have been established and are working to define actions for inclusion in the Implementation Plan. Mr. Frank Russo, EH, is the lead of the team looking at the areas of Oversight, Technical Capability, and Delegation of Authority/FRA Documents/QA Program. Mr. Evans stated that he and Mr. JJ Hynes are on the Technical Capability sub-team, which is involved with topics related to the FTCP and that he needs a couple of volunteers from the Panel to support the effort. Mr. Swailes volunteered. Mr. West stated that he would speak to Mr. Morrow regarding NNSA representation.

- b. Status of NNSA Facility Representative Staffing Analysis Review – Mr. Hoag stated that 2 sub-teams were established to respond to the DNFSB letter of May 14, 2004 (Attachment 3). Mr. Hoag is leading the team (includes Mr. Evans) working on the Facility Representative work force analysis methodology and is working closely with Mr. Fred Bell of Los Alamos on this activity. The team is also working closely with the FTCP workforce analysis working group to assure consistency in approach within the Department. Mr. Hoag stated that his team will have a product available for review in the near future.
- c. Status of Activities to Develop a Standardized Workforce Analysis and Staffing Process – Mr. Swailes stated that he met with Mr. Arango and Mr. Evans and Mr. Fred Bell of Los Alamos, to develop a methodology for consistent development of the workforce analysis that the sites/office are required to submit at the end of the calendar year. The methodology was briefed to Mr. Morrow and Mr. Schepens, and will a draft letter prepared for transmittal to the Agents for review. Mr. DeLoach requested that DNFSB be briefed on the results/path forward, perhaps during the January or February timeframe. Mr. Evans will work with Mr. DeLoach to schedule a briefing. Mr. Swailes also offered to provide an informal briefing to the DNFSB staff in the near future.
- d. Status of Activities to Implement Safety System Oversight (SSO) (Action 2.5, Begin Initial Assessments of SSO Program) – Mr. Swailes stated that the first assessment was performed (ORP), thereby completing Action 2.5.

Mr. Swailes also stated that an assessment schedule was developed and the only sites that have **not** scheduled an assessment are: **NNSA Service Center** and **Pantex**. Mr. Swailes committed to providing the schedule to Mr. West for addition to the FTCP webpage for information. Mr. DeLoach stated that the Board Staff would like to observe the assessment(s).

- e. Overview of Activities Underway to Prepare an Action Plan that Identifies Specific Action to Pursue that will Enhance the Capability and Qualifications of

DOE Authorization Basis Personnel (Action 4.1) – Questionnaires are still coming in. No further input at this time.

4. Call for any other New Business, Concerns, or Issues
  - a. Project Management Qualification Card – Mr. Walter Howes was not in attendance on the conference call. Mr. Swailes (for Mr. Schepens) provided a brief discussion about the Office of River Protection activity to combine (build on) the PMCDP and site/technical project requirements. The ORP qualification card was provided for information and several sites stated that they had similar qualification cards. Mr. Swailes requested that the qualification cards be sent to Mr. West and Mrs. Coleman for transmittal to the other Agents for information.
  - b. Mr. Hoag asked that the results of this review of existing requirements, guidance and criteria for program assessments in DOE M 426.1, Chapter IX and recommendations (Action 6.2) be provided to the Agents for discussion during the next conference call (Action 6.2) – Led by Mr. Hoag
  - c. Mr. Boyce noted three key issues/concerns to the Panel:
    - (1) The Fire Protection FAQs will be due for review in 2005.
    - (2) As a result of the safety issues occurring, there may need to be more rigor in Industrial Safety areas (one option may be to send the Facility Reps to OSHA training).
    - (3) Personnel transferring from site to site due to reorganizations and/or closures may result in a gap being closed at one site and established at another site.
  - d. Development of FY2005 FTCP Annual Action Plan and Report to the Secretary – Mr. West stated he will providing the Agents with a schedule for development of the Plan in the near future and requested that the Agents be considering what activities the Panel would like to pursue during FY 2005. [Note: the revised FTCP Manual includes a change of process for the Action Plan; the Panel prepares the Action Plan and the *Deputy Secretary is now the approval authority.*]  
  
Mr. Swailes suggested that a working group be established to develop the draft Action Plan, as was used last year to develop the Action Plan.
5. Summary of Conference Call and Review of Action Items
  - a. Next Conference Call – August 25, 2004, 10:00 to 11:00 EST, call-in number (301) 903-6064 [reservation number 100553]

**[DNFSB LETTERHEAD]**

May 21, 2004

The Honorable Spencer Abraham  
Secretary of Energy  
1000 Independence Avenue, SW  
Washington, DC 20585-1000

Dear Secretary Abraham:

On May 21, 2004, the Defense Nuclear Facilities Safety Board (Board), in accordance with 42 U.S.C. § 2286d(a), unanimously approved Recommendation 2004-1, which is enclosed for your consideration. Recommendation 2004-1 deals with Oversight of Complex, High-Hazard Nuclear Operations.

After your receipt of this recommendation and as required by 42 U.S.C. § 2286d(a), the Board will promptly make it available to the public. The Board believes that the recommendation contains no information that is classified or otherwise restricted. To the extent this recommendation does not include information restricted by DOE under the Atomic Energy Act of 1954, 42 U.S.C. §§ 2161-68, as amended, please see that it is promptly placed on file in your regional public reading rooms. The Board will also publish this recommendation in the *Federal Register*.

Sincerely,

***John T. Conway***  
***Chairman***

Enclosure

c: Mr. Mark B. Whitaker, Jr.

**DEFENSE NUCLEAR FACILITIES SAFETY BOARD**  
**RECOMMENDATION 2004-1 TO THE SECRETARY OF ENERGY**  
**Pursuant to 42 U.S.C. § 228a(a)(5)**  
**Atomic Energy Act of 1954, As amended.**

Dated: May 21, 2004

In furtherance of its statutory duty to oversee the Department of Energy's (DOE) protection of workers and the public from hazards at defense nuclear facilities operated for DOE and the National Nuclear Security Administration (NNSA), the Defense Nuclear Facilities Safety Board (Board) conducted eight public hearings to examine DOE's current and proposed methods of ensuring safety at its defense nuclear facilities.

In these hearings, the Board also sought to benefit from the lessons learned as a result of investigations conducted following the Columbia Space Shuttle disaster and the discovery of the deep corrosion in the reactor vessel head at the Davis-Besse Nuclear Power Plant. The Board received testimony from representatives of the Nuclear Regulatory Commission; the Naval Reactors Program; the Columbia Accident Investigation Board; the Deputy Secretary of Energy; the Administrator of NNSA; DOE's Under Secretary of Energy, Science and Environment; DOE's Assistant Secretary for Environment, Safety, and Health; and selected site managers of DOE's facilities, senior contractor managers, and members of the public.

The overall objective of the hearings was to gather information that could be helpful in assessing DOE's proposals for changing the methods it uses for contract management and nuclear safety oversight, as they have been controlled through the DOE Directives System. NNSA has proposed shifting responsibility for safety oversight from DOE Headquarters to the DOE field offices and site contractors. The key question the Board sought to address was: Will modifications proposed by DOE/NNSA to organizational structure and practices, as well as increased emphasis on productivity, improve or reduce safety, and increase or decrease the possibility of a high-consequence, low-probability nuclear accident?

DOE's programs for national security and environmental protection are complex, with potentially high consequences if not safely performed. Mishandling of nuclear materials and radioactive wastes could result in unintended nuclear criticality, dispersal of radioactive materials, and even nuclear detonation. DOE has a long and successful history of nuclear operations, during which it has established a structure of requirements directed to achieving nuclear safety. That structure is based on such methods as defense in depth, redundancy of protective measures, robust technical competence in operations and oversight, extensive research and testing, a Directives System embodying nuclear safety requirements, Integrated Safety Management, and processes to ensure safe performance.

The United States owns the defense nuclear facilities at which its programs are carried

out by a government agency—DOE. Each such facility is operated by a contractor that was selected by DOE on the basis of being best suited to conduct the work for DOE at that site. Under the original Atomic Energy Act of 1946 and continuing to date in the Atomic Energy Act of 1954, as amended, the government officials in charge (i.e., the Secretary of Energy and other line officers) have a statutory responsibility to protect health and minimize danger to life or property. In any delegation of responsibility or authority to lower echelons of DOE or to contractors, the highest levels of DOE continue to retain safety responsibility. While this responsibility can be delegated, it is never ceded by the person or organization making the delegation. Contractors are responsible to DOE for safety of their operations, while DOE is itself responsible to the President, Congress, and the public.

This reality was highlighted during the course of the Board's hearings. Many important lessons were cited in the testimony provided. These included the importance of a centralized and technically competent oversight authority, central control of technical safety requirements and waivers for departure from those requirements, an ability to operate in a decentralized mode when appropriate, a willingness to accept criticisms, the need for retention of technical expertise and capabilities at high levels of any organization in which technical failure could have high consequences, and an awareness that complacency can arise from a history of successes. DOE representatives testified that DOE's attention to safety has continued to improve with better on-site oversight and self-assessment programs, use of Integrated Safety Management, careful attention to safety statistics, and stabilization and disposal of high risk nuclear materials. However, cause for concern with regard to the potential increase in the possibility of nuclear accidents was also evident in: (1) the increased emphasis on productivity at the possible expense of safety, (2) the loss of technical competency and understanding at high levels of DOE's and NNSA's organizational structure, (3) the apparent absence of a strong safety research focus, and (4) the reduced central oversight of safety.

Clearly, safety performance can benefit from attention to detail and lessons learned from small incidents and minor accidents. However, failures leading to high-consequence, low-probability accidents would likely have their roots in interactions between engineering failures and improper human actions. Because the consequences of large nuclear accidents would be unacceptable, the nuclear weapons complex cannot permit them to occur. While the potential for such accidents cannot be completely eliminated, their likelihood can be held to an insignificant level by rigorous attention to Integrated Safety Management with technical and operational excellence based on nuclear safety standards subject to rigorous oversight. In addition, nuclear safety must be founded on solid research, analysis, and testing to ensure an adequate understanding of energetic initiating mechanisms under off-normal conditions.

DOE has taken some preliminary steps toward its proposed changes in safety practices. These actions may have contributed to some unfortunate consequences, such as the following:

- A glovebox fire occurred at the Rocky Flats closure site, where, in the interest of efficiency, a generic procedure was used instead of one designed to identify and control specific hazards. Apparently, success of the cleanup project resulted in management complacency. DOE site management had given the impression that safety was less important than progress, and contract management had not emphasized oversight of work control processes.
- Downsizing of safety expertise has begun in NNSA's NA-53 organization, while field organizations such as the Albuquerque Service Center have not developed an equivalent technical capability in a timely manner. As a result, NNSA field offices are left without an adequate depth of understanding of such important matters as seismic analysis and design, training of nuclear workers, and protection against unintended criticality.
- DOE's Office of Environmental Safety and Health, with assistance from some sites and contractors, has reviewed DOE Directives to simplify safety requirements, with the objective of supporting accelerated operations that are also more efficient. This shift has led to proposals for downgrading some worker safety Directives to the level of guidance and modifying some radiation protection requirements. It has also led to a proposed modification of the Order on Worker Safety and Health to reduce requirements for protecting workers from the consequences of fires, explosions, and discharges from high-pressure systems.

Proposed modifications to DOE and NNSA's organizational structure, manpower, contract management, oversight policies and practices, and safety directives could have unintended consequences. These include reduction of defense in depth, potentially inconsistent safety-related decisions caused by decentralization of safety authority, emphasis on performance as opposed to safety, and reduction of technical capability at key points in the organizational structure. DOE and NNSA line managers could be left with inadequate awareness of safety issues.

As a result of testimony it has received, the Board is not convinced of the benefit of the changes to DOE's and NNSA's organizational structure and practices as they have been described. The Board cautions that if any such changes are made, they must be done formally and deliberatively, with due attention given to unintended safety consequences that could reduce the present high level of nuclear safety. DOE should take full advantage of lessons learned from safety problems discovered by National Aeronautic Space Administration and Nuclear Regulatory Commission, and it should learn from the success of the good organizational and safety practices championed by the Naval Reactors Program. The Board needs to be sure that any fundamental reorganization does not degrade nuclear safety, and that the likelihood of a serious accident, facility failure, construction problem, or nuclear incident will not be increased as a result of well-intentioned changes.

As a result of testimony received at the public hearings and the potential effects on safety at defense nuclear facilities outlined above, the Board recommends:

1. That delegation of authority for nuclear safety matters to field offices and contractors be contingent upon the development and application of criteria and implementing mechanisms to ensure that:
  - a. oversight responsibility includes the capability for examining, assessing, and auditing by all levels of the DOE organization,
  - b. the technical capability and appropriate experience for effective safety oversight is in place, and
  - c. corrective action plans consistent with recommendations resulting from internal DOE and NNSA reviews of the Columbia accident and the Davis-Besse incident are issued.
  
2. That to ensure that any features of the proposed changes will not increase the likelihood of a low-probability, high-consequence nuclear accident, DOE and NNSA take steps to:
  - a. empower a central and technically competent authority responsible for operational and nuclear safety goals, expectations, requirements, standards, directives, and waivers;
  - b. ensure the continued integration and support of research, analysis, and testing in nuclear safety technologies; and
  - c. require that the principles of Integrated Safety Management serve as the foundation of the implementing mechanisms at the sites.
  
3. That direct and unbroken line of roles and responsibilities for the safety of nuclear operations—from the Secretary of Energy and the NNSA Administrator to field offices and sites—be insured according to appropriate Functions, Responsibilities, and Authorities documents and Quality Assurance Implementation Plans.
  
4. That prior to final delegation of authority and responsibility for defense nuclear safety matters to the field offices and contractors, DOE and NNSA Program Secretarial Officers provide a report to the Secretary of Energy describing the results of actions taken in conformance with the above recommendations.

***John T. Conway, Chairman***

**[SOE LETTERHEAD]**

July 21, 2004

The Honorable John T. Conway  
Chairman  
Defense Nuclear Facilities Safety Board  
625 Indiana Avenue, NW, Suite 700  
Washington, DC 20004-2901

Dear Mr. Chairman:

The Department has thoroughly reviewed Recommendation 2004-1 regarding oversight of complex, high-hazard nuclear operations issued by the Defense Nuclear Facilities Safety Board (Board) on May 21, 2004.

The Department remains firmly committed to its Integrated Safety Management (ISM) program as the foundation for performing work safely throughout the Department. The Department's response will include actions to enhance the effectiveness of our ISM program. We remain committed to safety as our top priority and will not sacrifice safety to meet production goals. In January, we highlighted our commitment to continued safety improvement by establishing safety as one of the seven Department-wide Management Challenges for 2004.

As you observed as background to the recommendation, the Columbia accident and the Davis-Besse incident provide valuable lessons from which the Department can learn as we continue to improve our safety management. The lessons from these events will be key inputs in our action planning in response to your recommendation.

The Department accepts Recommendation 2004- 1 and will develop an implementation plan to accomplish the following actions for nuclear operations at defense nuclear facilities:

1. Clarify and/or establish formal requirements regarding delegation of authority on safety matters to ensure that delegations are made with clear criteria. Ensure that adequate oversight and technical capability are in place to fulfill these safety responsibilities at all levels of the Department.
2. Identify applicable lessons from the Columbia accident and Davis-Besse incident and implement corrective actions to improve safety throughout the organization.
3. Establish a technically-competent, central authority or authorities with core safety responsibilities.
4. Identify safety research, analysis, and testing needs and institute a program to ensure effective management, integration, and execution of efforts to address these needs.

5. Revise and implement the Functions, Responsibilities and Authorities documents and Quality Assurance Plans, as needed, to achieve the actions described above and to ensure direct and unbroken lines of roles and responsibilities for the safety of nuclear operations.
6. Validate that safety responsibilities, capabilities, and authorities are implemented and consistent with requirements.

The Department's understanding is that Recommendation 2004-1 does not require changes to the structure of the directives management system or to the existing DEAR clauses.

Regarding delegations of authority on defense nuclear safety matters, I have directed the Department's senior managers to make no new field delegations, except as approved by me or the Deputy Secretary until the Department completes the applicable actions identified in the Department's 2004-1 implementation plan. To clarify, this restriction does not apply to delegation modifications that may be required as a result of personnel changes or delegation expirations.

I have asked Mr. Ted Sherry, Deputy Manager, National Nuclear Security Administration Y-12 Site Office, to lead the response team that will develop the Department's 2004-1 implementation plan. If you have questions, please contact him at (865) 576-0752.

Sincerely,

***Spencer Abraham***

**[DNFSB LETTERHEAD]**

May 14, 2004

The Honorable Spencer Abraham  
Secretary of Energy  
1000 Independence Avenue, SW  
Washington, DC 20585-1000

Dear Secretary Abraham:

The Defense Nuclear Facilities Safety Board (Board) continues to view the Facility Representative (FR) Program as one of the Department of Energy's most effective and efficient approaches for assuring the safety of the full spectrum of hazardous activities. The Board's staff conducted reviews at the Pantex Site Office (PXSO), Sandia Site Office (SSO), and Los Alamos Site Office (LASO) to evaluate the training and staffing of FRs.

Observations by the Board's staff revealed that the FRs at these National Nuclear Security Administration (NNSA) sites are being trained on the facility-level safety requirements; however, they are not being adequately trained to understand all hazards that could impact safety controls for activities being conducted within their assigned facilities. This lack of activity-specific training limits the FRs' ability to recognize and identify safety issues associated with the conduct of these activities. For example, the Board's staff discovered during the W78 Readiness Assessment that the PXSO FRs were not required to have any weapon-specific training on the hazards and associated controls for the W78. It was explained that one factor limiting the ability to expand FR qualification and continuing training requirements is the limited number of FRs as compared with the number of nuclear weapons operations, facilities, and site-wide safety bases.

The number of FRs at PXSO has decreased from nine to six. The level of staffing of FRs at the NNSA sites is of particular concern to the Board. As a result, the FRs face significant challenges to their ability to monitor nuclear weapon activities and perform their other assigned duties, such as Duty Officer and member of Readiness Assessment teams. SSO and LASO have not met their FR staffing needs for the past 4 years, raising the question of how NNSA can be an effective, demanding customer for its two largest national laboratories. PXSO and LASO have requested two to three additional FR billets, but even these may not be sufficient to meet their needs.

The FR training and staffing deficiencies noted above may affect NNSA's ability to improve and maintain the safety of the hazardous activities conducted at the NNSA sites. Therefore, pursuant to 42 U.S.C. § 2286b(d), the Board requests a report within 60 days of receipt of this letter that reviews the extent of these issues at all NNSA sites and outlines the measures that will be taken to address these deficiencies. The enclosed report prepared by the Board's staff is forwarded for your information and use in initiating this review.

Sincerely,

***John T. Conway***  
***Chairman***

c: The Honorable Kyle E. McSarrow  
The Honorable Linton Brooks  
The Honorable David K. Garman  
The Honorable Jessie Hill Roberson  
Mr. Mark B. Whitaker, Jr.

Enclosure

**DEFENSE NUCLEAR FACILITIES SAFETY BOARD****Staff Issue Report**

April 27, 2004

**MEMORANDUM FOR:** J. K. Fortenberry, Technical Director

**COPIES:** Board Members

**FROM:** J. DeLoach

**SUBJECT:** Review of Facility Representative Training and Staffing at Three National Nuclear Security Administration Sites

This report documents observations resulting from a review of Facility Representative (FR) training and staffing at the Pantex Site Office (PXSO), the Sandia Site Office (SSO), and the Los Alamos Site Office (LASO). This review was conducted by a member of the staff of the Defense Nuclear Facilities Safety Board (Board) J. DeLoach during March 22-24, 2004. The Board's staff was not able to review the FR program at the Kansas City Site Office (KCSO) as it has been disestablished. As part of each review, the staff also walked down several defense nuclear facilities at each of the sites with the cognizant FR.

**Overview.** The three National Nuclear Security Administration (NNSA) sites are not staffed with a sufficient number of FRs to perform their facility oversight responsibilities and participate in their additional assignments (e.g., Duty Officer, member of Readiness Assessment teams, training). SSO and LASO have also been underreporting their FR staffing needs for the past 4 years. Of note, the guidance on FR staffing analysis in DOE-STD-1063-2000, *Facility Representatives*, does not adequately account for all of the hazardous facilities for which the Department of Energy (DOE) and NNSA have oversight responsibility, and does not capture all of the FR work demands. The FR continuing training programs were unstructured, informal, and generally weak in execution. As of the time of this review, training on specific activities within a facility (e.g., weapons-specific hazards and associated controls at PXSO or hazardous research activities at LASO) was not required. Detailed observations are presented below.

**FR Capacity for Growth.** Because of the demonstrated value and success of the FRs, DOE and NNSA continue to invest heavily in the FR program. FRs have been recognized by senior DOE/NNSA managers not only for their extensive systems knowledge and field skills, but also for their managerial potential. Personnel with FR experience are often sought for demanding management positions involving operations and safety. The *DOE Facility Representative Program Performance Indicators Quarterly Report* of March 16, 2004, reports an overall attrition rate in 2003 of 20 percent (40 of 204 FRs). As described in the report, only 6 of the 40 FRs had left DOE, while 34 FRs had remained within the DOE complex through lateral transfer to another

position at their site or other DOE/NNSA organization (26), transfer to another site to be an FR (5), or promotion to a higher grade (3).

**FR Training.** DOE Order 5480.19, *Conduct of Operations Requirements for DOE Facilities*, and DOE Manual 231.1-2, *Occurrence Reporting and Processing of Operations Information*, specifically assign responsibility to the FR “for monitoring the performance of the facility and its operations”. At the NNSA sites, it appears that FRs are trained and qualified primarily on the facility functions; but receive little or no training on the specific hazards and associated controls of the operations or activities performed within the facility. This lack of activity-specific training limits the FRs’ ability to recognize and identify safety issues associated with the conduct of the nuclear weapons-specific or research-specific activities in their respective facilities. The NNSA sites have relied to a limited extent on their FR continuing training programs to provide some training in this area. However, the continuing training programs at the three NNSA sites reviewed were unstructured, informal, and generally weak in execution. FR attendance at key continuing training courses (e.g., the course on significant changes to the Occurrence Reporting and Processing System in 2003) was not accurately tracked or enforced at any of the three sites.

During the W78 Readiness Assessment conducted in January 2004 at the Pantex Plant, the Board’s staff discovered that the cognizant FR had not received and was not required to have any weapons-specific training that would provide an understanding of the unique weapon-related hazards and associated controls for the upcoming weapon operation. As a result, PXSO modified its FR continuing training instruction to require FRs to read the weapon-specific Hazard Analysis Report and Technical Safety Requirements; observe tooling training; and, if funding is available, attend the weapons training at Los Alamos National Laboratory (LANL). This is a good first step, but implementation will be a challenge because of the limited number of FRs at PXSO. These added training requirements will also challenge the FRs’ ability to perform their primary functions. Conversely, the press of their duties will hinder their ability to read and digest weapons-specific safety documentation in a self-study mode. Additionally, PXSO acknowledged that limited funding will hinder FR attendance at the LANL training. Of note, this training is applicable only to LANL-designed weapon systems. Similar training on Lawrence Livermore National Laboratory’s weapon systems apparently does not exist. Furthermore, there is no linkage or plan to determine which FR needs which training. Also, managers are relying on their FRs to identify the right course and find the time to take it.

**FR Staffing at PXSO, SSO, and LASO.** PXSO has 6 FRs since the transfer of 1 FR to LASO. In last year’s Managed Staffing Plan, NNSA claimed that 6 FRs were sufficient at the Pantex Plant, justifying this statement primarily by proposing changes in oversight coverage of hazardous activities. Since 1999, NNSA’s staffing analyses, using the guidance in DOE-STD-1063-2000, *Facility Representatives*, have consistently shown a need for 14.5 FRs at PXSO. Their normal responsibilities include monitoring nuclear weapons activities in 214 nuclear facilities (bays, cells, buildings, and nuclear material

storage magazines) or observing other industrial activities in 150 moderate- to low-hazard facilities under the BWXT Pantex contract.

The PXSO FRs will also participate in eight readiness reviews in 2004 (duration of 2-4 weeks each for one or two FRs), are scheduled to conduct 12 site assessments (duration of 1 week each for every FR) this year, and will serve regularly in rotating assignment as Duty Officer. The FRs will also observe maintenance activities during the swing shift on a monthly basis, devote time to training and requalification (five FRs are due to requalify in 2005), and use several weeks of leave for vacation and medical reasons. Given these responsibilities, cumulative time demands, and overall workloads, it is clear that PXSO does not have a sufficient number of FRs. PXSO recently sent a request to the NNSA Administrator for three additional FR positions that, if approved, would increase PXSO's total to nine. However, even this increase may not be enough to satisfy the current and future workload of the FRs. This shortage will continue to impact the ability of FRs to spend the majority of their time in their assigned facilities, observing and assessing activities to ensure their safe operation.

SSO is responsible for more than 800 facilities, approximately 400 of which are classified as hazardous facilities. These facilities are located in five states (New Mexico, Texas, Nevada, California, and Hawaii), where a wide variety of hazardous operations, mostly non-nuclear, are performed under the Sandia National Laboratories (SNL) contract (valued at \$2.02 billion for fiscal year 2004). Among the hazardous facilities are five nuclear facilities in Technical Area-V (two Hazard Category 2 research reactors, two Hazard Category 3 hot cell facilities, and one Hazard Category 3 irradiation facility) and another four Hazard Category 3 nuclear material storage facilities at Manzano.

SSO currently has 8 FRs, 5 of whom are qualified. One qualified FR is assigned to the nuclear facilities, while another is in the process of qualifying, with a scheduled completion date of March 2005. One qualified FR is charged with monitoring the SNL facilities and activities of approximately 1,000 contractor personnel in Livermore, California, but he also serves as an SSO site manager for these remote SNL facilities. The FR staffing analyses recorded in the DOE *Facility Representative Program Performance Indicators Quarterly Reports* for the past 3 years have reported a need for 12 FRs at SSO. It appears that SSO has been underreporting its FR staffing needs since calendar year 2000. Earlier FR staffing analyses from 1997 and 1999 showed that SSO needed approximately 21-22 FRs to carry out required oversight responsibilities.

LASO has 16 authorized FRs positions, of which 13 are filled. Of these 13, 10 FRs are fully qualified, and 2 others are previously qualified FRs from other sites. LASO has vacancy announcements posted for 3 FR positions, and has also submitted a request to the NNSA Administrator for 2 more FR positions. In the past, LASO has reported a need for 19 FRs, but a staffing analysis from 2001 suggests a more sophisticated approach to determining staffing needs that incorporates realistic workload activities and takes into account historical turnover rates of qualified FRs. The 2001 analysis showed that 24 FR positions were needed to maintain coverage of LASO hazardous facilities, crediting 19 qualified FRs while allowing time for other FR candidates to qualify (qualification time

for an FR candidate is usually 9-18 months, depending on the experience level of the individual). With the turnover of a qualified FR occurring roughly every 3-4 years as a result of lateral transfers, promotions, or departures, there is a measurable impact on the availability of qualified FRs at LASO. This detailed analysis methodology could be applied as well at other NNSA sites.

The LASO staffing analysis will need to be reperformed because of an increase in the number of LASO facilities identified as nuclear during efforts to develop the new or revised Documented Safety Analyses required by 10 Code of Federal Regulations (CFR) 830, *Nuclear Safety Rule*. Since last reported in the Board's letter of October 10, 2001, LASO has identified 17 Hazard Category 2 nuclear facilities (an increase of 5), 9 Hazard Category 3 nuclear facilities (an increase of 6), and 41 radiological facilities. (The 11 additional facilities are inactive environmental facilities.) With an additional 350 moderate- to low-hazard facilities under LASO's oversight, the FRs are continually challenged to find time to observe the multitude of activities tasked under the Los Alamos contract (valued at \$1.98 billion for fiscal year 2004). For example, it was reported that Technical Area-18, the Los Alamos Critical Experiments Facility, had no FR coverage since December 2003.

**Staffing Analysis Guidance in DOE-STD-1063-2000.** The guidance for determining the coverage and staffing requirements for FRs at a site set forth in DOE-STD-1063-2000 does not adequately account for all of the hazardous facilities in which DOE/NNSA have oversight responsibility. The guidance addresses Hazard Category 1, 2, and 3 nuclear facilities, but does not address nuclear facilities below Hazard Category 3 (i.e., radiological facilities). Additionally, the guidance does not clearly capture other hazardous non-nuclear facilities under DOE/NNSA purview, such as those facilities handling high explosives, chemicals, or biological agents. DOE directives (i.e., DOE Order 5480.19 and DOE Manual 231.1-2) require specific FR actions at all DOE facilities where hazardous or industrial operations are conducted. Therefore, sufficient FR staffing levels are needed to ensure the safe operation of these hazardous non-nuclear facilities, especially if they are collocated with defense nuclear facilities and could impact nuclear operations or consume necessary resources needed for adequate coverage of a site's defense nuclear facilities. Finally, the standard fails to consider all of the responsibilities, time demands, workload, and turnover rates affecting all FRs, as discussed above. Misapplication of the staffing analysis guidance in DOE-STD-1063-2000 has contributed, among other things, to allowing KCSO to discontinue its FR program and PXS0 to drastically reduce coverage of its non-nuclear hazardous facilities.

Follow-up discussions with the FR Program Manager indicate that revisions to the guidance to address the issues raised above will be considered during the upcoming update to DOE-STD-1063-2000. The Board's staff further notes that a similarly rigorous approach is also needed in the staffing analyses used to determine other federal technical staffing needs at each of the sites within the defense nuclear complex. The Board's staff has discussed with the Federal Technical Capabilities Panel the need to upgrade its technical staffing analysis methodology to meet this higher level of rigor.

